

# Consumer and Boil Water Advisory Guidance

Kentucky Water and Wastewater Operators  
Association

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By:

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# Background

- Pre January 2005
  - Consumer advisory
  - Boil water advisory
  - Boil water notice
- Post January 2005
  - Consumer advisory
    - Boil water advisory a component of consumer advisory
  - Guidance developed to streamline how and when BWAs are issued, how and when to lift
  - Often BWAs issued when need was not there

# Background

- 10 Regional Offices, 1 Central Field Operations and 1 Drinking Water Branch
  - Potentially all could be handling BWAs differently
  - BWAs should be issued for bacteriological contamination only
    - Instances when have issued for other situations
- Public water systems often control plant and distribution situations to avoid having to issue a BWA

# Definitions

- Consumer Advisory
  - A notice to the consuming public through radio, television, direct mail, electronic mail, posting, newspaper or other media and that conveys the quickest and most effect manner
    - Information that the water provided by a system may cause adverse human health effects if consumed and what action the public is advised to take; or
    - Other information that the public needs to know about its water

# Definitions

- Boil Water Advisory
  - A type of consumer advisory that provides to the consuming public through radio, television, direct mail, electronic mail, posting, newspaper or other media and then conveys the quickest and most effective manner
    - Information that water provided by a system may cause adverse human health effects due to possible biological contamination if consumed, unless it is first boiled for three (3) minutes at a rolling boil; and
    - What actions to take

# Biological Contamination

- In most cases refers to total coliforms
  - Large group of facultative (can live with or without oxygen) bacteria common in the environment and not generally harmful
- The total coliform group does contain species that can be harmful
  - Fecal coliform
  - E.coli (and E.coli 0157:H7)
- Other biological contaminants can include protozoans (Giardia, Cryptosporidium), viruses, algae, nematodes

# Bacteriological Contamination

- Most BWAs issued for presence or potential presence of total coliform
  - Routine compliance testing
  - Main breaks
  - Water plant upsets
- “Results from a single sample or set of samples are typically not cause for issuing a BWA” (AWWA Manual M48)
- Bacteriological samples should be confirmed positive before making any decisions to issue a BWA

# Regulatory Advisory Requirements

- 401 KAR 8:020
- Water systems may issue a BWA or CA if they feel it is necessary
- EPPC may do so if they deem necessary
  - Confirmed E.coli
  - Conditions exist in a water system such that adverse health effects could occur if the water is consumed



# Line Break Reporting Requirements

- 401 KAR 8:150
- Water systems are to notify EPPC immediately if at the time of a line break
  - It experiences pressures below 20 psi in the area surrounding the break; or
  - The break requires longer than 8 hours to repair
    - The 8 hour timeframe begins when the system becomes aware of the break
  - A BWA is not immediately mandated in these situations
    - Situation should be assessed and a determination made to issue BWA or not
    - If necessary, consult with Regional Office

# Line Break Reporting Requirements

- Community and non-transient community systems shall maintain a line break log of all such breaks
  - Date and location of break
  - Time discovered
  - Population affected
  - Time required to repair break
  - Date and time disinfectant residuals are detected; and
  - Date, time and results of bacteriological samples
- This log must be available for inspection by EPPC personnel
- Only breaks meeting criteria of previous slide must be reported to EPPC

# Emergency Repairs

- 401 KAR 8:150
- For repairs due to ruptures
  - Thoroughly flush the break area
  - Maintain at least minimum detectable disinfection residuals
  - Can leave the line in service and repair under pressure with the above criteria
- At least 2 bacteriological tests are required
  - 1 located before or just upstream of the break
  - 1 located behind or just downstream of the break
  - Additional samples downstream may be necessary depending upon the extent of the break

# Emergency Repairs

- Line Break Bacteriological Samples
  - Clearly label bottles and chain-of-custody as “specials”
  - Clearly identify the samples on the DWB report form as “specials”
  - Submit to DWB
    - Monthly with compliance samples unless they were necessary to lift a BWA
    - Those “special” samples used to lift a BWA shall be submitted to EPPC as soon as results are known
  - Keep “special” bacteriological results for at least 1 year

# Issuing a BWA—Beyond a Line Break

- Other situations may warrant a BWA
  - High turbidity in water distributed to the public
    - Turbidity can shield bacteria from disinfectant
    - Turbidity can consume disinfectant
    - Sustained CFE of 1 NTU or greater for 6 or more hours
    - Turbidity exceeding 5 NTU
  - Treatment plant malfunction
    - Unfiltered or non-disinfected water distributed to the public
  - Difficulty maintaining minimum chlorine residuals in plant tap

# Issuing a BWA—Beyond a Line Break

- Cross-connection with potential of bacteriological contamination
- Confirmed groundwater under the influence of surface water
- Confirmation of acute bacteriological (E.coli or fecal coliform) violation
  - Use best professional judgment
    - Number and location of positive samples
    - Disinfectant residuals
- Confirmed waterborne disease outbreak

# Customer Notification Content

- If appropriate, issue localized advisory
- If a line break and no BWA, advise that
  - Break has occurred
  - Repairs have been made
  - Should flush household plumbing
- If BWA then include information on should boil water

# Issuing a BWA—Specific Line Breaks

- Specific line break situations
  - If a break involves a school
  - In remote areas when finding break is difficult
  - If a break is at bottom of a hilly area
  - If a break is close to a old or damaged sewer line (or possibly a CSO)
  - If break is in an area of low flows/low disinfectant residuals



# Customer Notification Content

- Determine if the BWA/customer notification can be issued locally rather than system-wide
- If break and no BWA, notify customers that
  - A break has occurred
  - The repairs have been made
  - Customers should flush all household plumbing
  - This is similar to notification given to customers when annual or semi-annual distribution flushing is done
- If break and BWA, then include language on boiling water

# Notification Distribution

- If BWA issued, the water system shall immediately notify
  - Division of Water
  - Local Health Department
  - Affected customers
    - Doorknob hangers
    - Newspaper
    - TV
    - Radio
    - Other means
  - May want to contact directly hospitals, nursing homes and other customers serving sensitive populations

# BWA Sampling

- If a BWA is issued
  - Adequate samples should be taken for total coliform
  - If an acute compliance violation (confirmed E.coli or fecal coliform), sample as required under TCR repeat sampling
  - If a system-wide BWA
    - DOW has developed a chart with number of samples dependent upon population and similar to chart in TCR
    - Consecutive systems that are affected by such a BWA in their producing system should also
      - Issue a BWA
      - Sample after the BWA has been lifted in the producing system

# Lifting a BWA

- A BWA remains in effect until lifted by DEP
  - Regional Office
  - Central (Frankfort) Field Operations Branch
  - DEP Environmental Response Team (typically for after hours)
  - Drinking Water Branch
- Following criteria must be met to lift BWA
  - Satisfactory bacteriological results
  - Sufficient flushing of area
  - Treatment deficiency corrected

# Consumer Advisories

- Consumer advisories are for situations other than bacteriological contamination and usually deal with major contamination events
  - Elevated turbidity due to iron or manganese in the water
  - Detection of a chemical-based cross-connection
  - Crude oil/black water spill
  - Leaking UST
  - Terrorism event
- Can be used for minor events
  - Infrastructure work in the area

# Consumer Advisories

- Consumer notification should be tailored for each specific event, providing easy to understand information in the quickest and most efficient manner
  - This can follow that of boil water advisories
- Consumer advisories can be issued by both the water system and the DEP
  - If the event involves major contamination events, the DEP may become involved in the decision to lift the CA

# Consumer Advisories

- Consumer advisories will be lifted depending upon resolution of the event
  - Additional sampling
  - Sufficient information that the situation has been eliminated

# BWA or CA?

- Main break on 6" line repaired under pressure
- Main break on 5/8" service line to a home
- Main break on major distribution line that drops pressure in area to 15 psi and cannot be raised above 20 psi during repair
- Main break in a creek crossing during a rain event
- Main break that when repaired causes drop in chlorine residuals in area to less than 0.2 ppm
- Salmonella outbreak in July among people at a water park celebrating the 4th



# BWA or CA?

- Water plant fails to remove manganese through the treatment plant and distributed water turbidity exceeds 2 NTU for 2 days before situation is under control
- Chlorine cylinder runs empty and it is 5 hours before the operator discovers it—plant tap chlorine less than 0.2 mg/L for 4.5 hours
- Ice storm knocks out critical booster station to a low pressure area; electric company says may be 3 days before power is restored

# BWA or CA?

- Break on mayor's service line
- Booster pump motor burns up; pressure in area drops to 35 psi
- During routine distribution sampling, operator notices hard-piped cross connection between a drinking water faucet and fertilizer tank; high nitrates and ammonia found in distribution system
- Contractor breaks a water line while excavating a UST that has leaked product into surrounding soil; water line is PVC

# BWA or CA?

- Customers in area around a slowly developing industrial park call in with strange odors and tastes in water and illness; abandoned chemical drums found in an empty warehouse

# Questions?? Comments??

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